

### **REMARKS**

Applicants' representative thanks the Examiner for the courtesies extended with regard to the information conveyed *via* phone on August 27, 2007, by Francis Dunn, wherein a proposed amendment to independent claim 1 was conveyed to the Examiner. Applicants' representative further thanks the Examiner's Supervisor for the courtesies extended during the telephonic conference on August 21, 2007, with Francis Dunn. The proposed amendment to independent claim 1 related to certain distinctive aspects of the claimed subject matter, such as a declarative description component that can facilitate updates to a relational database such that changes made to a file while disconnected from the relational database can be utilized to update the relational database when the file is connected to the relational database.

Claims 1-46 are currently pending in the subject application, and claims 1-33 are presently under consideration. Claims 1, 9, and 24 have been amended as shown on pages 2-8 of the Reply. Claims 34-46 are withdrawn from consideration. No new matter has been added.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

#### **I. Rejection of Claims 1-33 Under 35 U.S.C. § 102(b)**

Claims 1-33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Shanmugasundaram, *et al.* (US 2004/0044959). It is requested that this rejection be withdrawn for at least the following reason. Shanmugasundaram, *et al.* does not disclose each and every element of the subject claims.

For a prior art reference to anticipate, 35 U.S.C. § 102 requires that “*each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (*quoting Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)) (emphasis added).

The claimed subject matter relates to representing relational schemas in an alternative declarative format to facilitate reconstruction of a relational database, for

example, when remote or disconnected from the relational database. In accordance with an aspect of the claimed subject matter, a declarative description component can represent a relational schema by generating data in an implementation-neutral, declarative format, for example, an Relational Schema Definition (RSD) language format that can be based on an eXtensible Markup Language (XML) format utilizing XML syntax. The declarative description component can utilize a tool to extract metadata associated with the relational database, and format the metadata into a file that can represent the precise data and structure of the database. The file can then be utilized to reconstruct the corresponding database when remote and disconnected from the relational database. Further, a user can modify the data in the file while disconnected from the database. The declarative description component can facilitate updates to the database by re-merging the modified file with the database to reflect the changes made to the file while disconnected from the database. Thus, the claimed subject matter provides the capability of allowing a user to work with the representative data and structure of a relational database even though remote and disconnected therefrom.

Further, the claimed subject matter can utilize a classification component that can employ a probabilistic-based and/or statistical-based analysis to infer actions and/or automated functions to be automatically performed. For example, one such automated function can be automatically annotating physical information representative of the relational database to generate logical information associated with the relational database.

In particular, independent claim 1 (and similarly independent claim 24), as amended, recites: ***a declarative description component that facilitates generation of data . . . that represents the relational database, generates a file, and stores the data in the file, the file facilitates reconstruction of the relational database when disconnected from the relational database, the declarative description component facilitates updates to the relational database such that changes to the data in the file while disconnected from the relational database are utilized to update the relational database when the file is connected with the relational database.*** Shanmugasundaram, *et al.* does not disclose this distinctive feature of the claimed subject matter.

Rather, Shanmugasundaram, *et al.* discloses querying of XML documents in a relational database system wherein a single query processor is used with any relational

schema generation method. (See p. 1, ¶ [0008]). Shanmugasundaram, *et al.* also discloses that the query processor can be used to execute queries that span across XML documents and XML views of existing relational data. (See *id.*) Shanmugasundaram, *et al.* also discloses creating an XML document view and creating relational tables for storing XML documents using relational schema. (See p. 1, ¶ [0009]; p. 2, ¶ [0021]). Shanmugasundaram, *et al.* further discloses shredding XML documents and storing the XML documents as rows in the relational tables according to the relational schema. (See *id.*) Shanmugasundaram, *et al.* additionally discloses generating a reconstruction view over the relational tables to define how the shredded documents are to be virtually reconstructed, and processing queries over the stored XML documents as queries over the reconstruction view. (See p. 1, ¶ [0009]; p. 2, ¶¶ [0021]-[0022], [0024]-[0026]).

However, unlike the claimed subject matter, Shanmugasundaram, *et al.* is silent regarding a file that stores data in a relational schema definition language format and facilitates reconstruction of a relational database while disconnected from the database, and a declarative description component that facilitates updating the relational database by enabling the relational database to be updated with regard to changes that are made to the file while disconnected from the relational database. Instead, Shanmugasundaram, *et al.* discloses techniques that enable querying of XML documents in a relational database *via* a reconstruction view allowing XML documents to be queried as though XML views of relational data. (See *Abstract*). Further, Shanmugasundaram, *et al.* discloses using a single query processor with all relational schema generation methods to seamlessly query across XML documents, relational data, and XML views of relational data. (See *Abstract*; p. 2, ¶ [0022]). Thus, Shanmugasundaram, *et al.* is concerned with being able to store and query XML documents in a relational database system using a single query processor. (See *e.g.*, p. 1, ¶¶ [0004], [0007]-[0008]).

In contrast, the claimed subject matter can generate data that represents a relational database, including its physical information (*e.g.*, data values in tables in the relational database) and logical information (*e.g.*, information regarding the structure of tables and columns in the relational database), in an implementation-neutral, declarative format (*e.g.*, RSD language format) that can be based upon an XML syntax. The data can be stored in a file, where the file can be used to reconstruct the relational database when

disconnected from the relational database. Further, the *declarative description component can be utilized to facilitate updating the relational database* with regard to changes made to the file while disconnected from the relational database. Changes made to data in the file while the file is disconnected from the relational database can be saved in the file. When the file is connected to the relational database, the declarative description component can facilitate re-merging the file, as modified, with the relational database such that *changes to the data in the file can be utilized to update the relational database* based on the changed data.

For example, a user can store, on a computer, a file (*e.g.*, RSD file) that represents a relational database in a non-procedural declarative language format (*e.g.*, RSD language format) based upon an XML syntax. The computer can be disconnected from the relational database. The user can use the file to regenerate the relational database, or a portion thereof, while the computer is disconnected from the relational database. The user can then modify or change the data in the file and save such changes to the file while still disconnected from the relational database. The user can then access the relational database. The declarative description component can re-merge the file, including the revised data, with the relational database to update the relational database with the changes that were made to the file while disconnected from the relational database.

Further, claim 18 additionally recites: *the classification component employs at least one of a probabilistic-based analysis or statistical-based analysis, or a combination thereof, to infer that an automated function be automatically performed*. Shanmugasundaram, *et al.* fails to disclose such distinctive functionality.

Rather, Shanmugasundaram, *et al.* discloses a technique for storing and querying XML documents. (*See* p. 2, ¶ [0021]). Shanmugasundaram, *et al.* discloses using nested queries to reconstruct sub-elements. (*See* p. 3, ¶ [0035]). Shanmugasundaram, *et al.* further discloses an algorithm that recursively traverses a document type definitions graph that is used for relational schema generation and certain nodes therein in order to create XQuery fragments to reconstruct the nodes. (*See* p. 3, ¶¶ [0036]-[0038]). However, unlike the claimed subject matter, Shanmugasundaram, *et al.* is silent regarding a classification component that employs probabilistic-based or statistical-based analysis to infer that a function is to automatically performed.

In contrast, the claimed subject matter can utilize a classification component that employs a *probabilistic-based and/or statistical-based analysis analysis to infer* that an automated function be performed. For example, if a relational database is distributed over several locations, and each location has an associated file that represents the distributed database portion at that location, the classification component can make inferences that facilitate determining which location will be selected for regeneration, in what order the locations will be processed, and when the file will be regenerated. As another example, the classification component can receive information regarding the access behavior of particular users, and, based on this information, can infer future use of the database or RSD files of such particular users to determine when to update and/or regenerate the RSD file.

In view of at least the foregoing, it is readily apparent that Shanmugasundaram, *et al.* does not disclose each and every element of the claimed subject matter as recited in independent claims 1 and 24 (and associated dependent claims 2-23 and 25-33). Accordingly, it is believed that the subject claims are in condition for allowance, and the rejection should be withdrawn.

**CONCLUSION**

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063[MSFTP449US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROCY & CALVIN, LLP

/Himanshu S. Amin/

HIMANSHU S. AMIN

Reg. No. 40,894

AMIN, TUROCY & CALVIN, LLP  
24<sup>TH</sup> Floor, National City Center  
1900 E. 9<sup>TH</sup> Street  
Cleveland, Ohio 44114  
Telephone (216) 696-8730  
Facsimile (216) 696-8731